

CLAIMS

12. A balanced plug valve comprising a housing having fluid conducting inlet and outlet ports and an upper terminating surface, said housing having an essentially central, vertical bore incorporating a number of stepped diameter portions one of which straddles said inlet and outlet ports and forming a first seating surface and where a second stepped diameter provides for a second seating surface, a valve plug slidingly arranged within said vertical bore and having stepped diameter portions capable of engaging said first and second seating surfaces when in the lowest sliding position, a bonnet having a lower, flat terminating surface and being suitably fastened near the upper terminating surface of said housing and furthermore being capable of preventing fluid egress from said housing bore, and means to motivate said valve plug, a thin, flexible metal washer is placed under said flat, terminating surface of the bonnet, and having an internal diameter somewhat smaller than that of the adjacent housing bore, and being capable of forming said second seating surface.
13. A balanced plug valve according to claim 12, wherein said plug having one or more vertical bores capable of communicating fluid from below said first seating surface to an area above said second seating surface.
14. A balanced plug valve comprising a housing having fluid conducting inlet and outlet ports and an upper terminating surface, said housing having an essentially central, vertical bore incorporating a number of stepped diameter portions one of

which straddles said inlet and outlet ports and forming a first seating surface and where a second stepped diameter incorporates a second seating surface, a valve plug slidably arranged within said vertical bore and having stepped diameter portions capable of engaging said first and second seating surfaces when in the lowest sliding position, a bonnet having a lower, flat terminating surface and being suitably fastened near the upper terminating surface of said housing and furthermore being capable of preventing fluid egress from said housing bore, and means to motivate said valve plug, one of the ports of the housing is configured at an angle of between 30 and 50 degrees to the horizontal axis and intersecting one of the stepped diameter bores of said housing providing thereby an essentially elliptical opening which is partially exposed by said valve plug when in its highest travel position.

15. A balanced plug valve according to claim 14, wherein the flat terminating surface of said bonnet furthermore engages a complimentary configuration near the upper terminating end of said housing.
16. A balanced plug valve according to claim 15, where a gasket is located below said flat, terminating surface of said bonnet.
17. A balanced plug valve according to claim 12, wherein said valve plug has a lower, terminating contoured configuration capable of forming a variable restriction for fluid flow passing between said inlet and outlet ports.

18. A balanced plug valve according to claim 12, wherein said means to motivate the valve plug consists of a cylindrical valve stem, whose lower end is suitably fastened to the plug and whose upper end extends through said bonnet.
19. A balanced plug valve according to claim 18, wherein said bonnet incorporates an adjustable packing portion capable of sealing said valve stem.
20. A balanced plug valve according to claim 12, wherein the stepped diameter portion of said housing bore located above said first seating surface is capable of providing a close-fit guiding surface for said sliding valve plug throughout a major portion of its sliding travel.
21. A balanced plug valve according to claim 12, wherein said bonnet has a threaded exterior engaging a similar threaded opening within the upper terminating surface of said housing.
22. A balanced plug valve according to claim 14, wherein said valve plug has a lower, terminating contoured configuration capable of forming a variable restriction for fluid flow passing between said inlet and outlet ports.